



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,407	12/11/2003	Abdelaziz Ikhlef	GEMS8081.201	1406
27061	7590	10/13/2006	EXAMINER	
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (GEMS)			KAO, CHIH CHENG G	
14135 NORTH CEDARBURG ROAD				
MEQUON, WI 53097			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,407

Applicant(s)

IKHLEF ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12-15 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 15, 18-26, 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 8, 9, 12-14 and 27 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

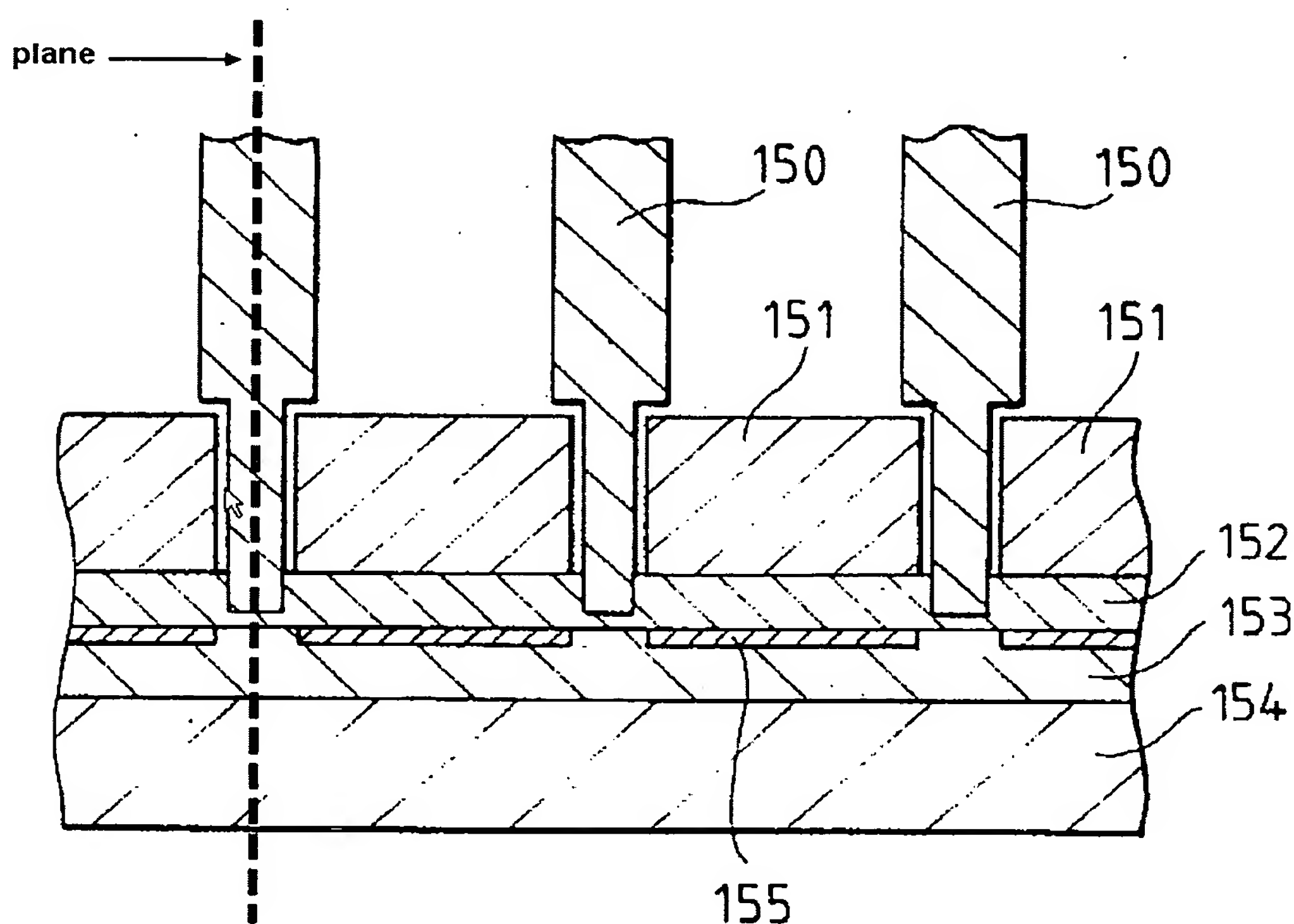
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 8, 9, 12-14, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al. (US 4982096) in view of Possin et al. (US 5430298).

2. Regarding claim 8, Fujii et al. discloses an apparatus comprising a first scintillator and a second scintillator (fig. 9, #151) positioned adjacently to one another and distanced from one another by a given width, a first photodiode operationally aligned to detect illumination of the first scintillator and a second photodiode operationally aligned to detect illumination of the second scintillator (fig. 9, #155), and at least one mask element (fig. 9, #150) arranged and extended in major part along a plane disposed between the first and the second scintillators (fig. 9, #151) and the first and the second photodiodes (fig. 9, #155) to reduce transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode (col. 7, lines 18-25), the at least one mask element having a width (fig. 9, width of #150 above #151) that exceeds the given width separating the first and the second scintillators from one another (fig. 9, width between #151), wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode (as

Art Unit: 2882

seen at "plane" in the modified figure below), the at least one mask element (fig. 9, #150) located closer to the first and the second scintillators (fig. 9, #151) than the first and the second photodiodes (fig. 9, #155).



However, Fujii et al. fails to disclose optically absorbing material.

Possin et al. teaches optically absorbing material (col. 5, lines 26-42).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the apparatus of Fujii et al. with the material of Possin et al.,

Art Unit: 2882

since one would have been motivated to make such a modification for lower cross-talk and lower noise (col. 2, lines 30-35) as shown by Possin et al.

3. Regarding claim 9, Fujii et al. further discloses wherein the first and the second scintillators are spaced from one another by a lateral gap (fig. 9, gap between #151).

4. Regarding claim 12, Fujii et al. further discloses wherein each scintillator (fig. 9, #151) is spaced from its corresponding photodiode by a vertical gap (fig. 9, gap between #151 and 155).

5. Regarding claim 13, Fujii et al. further discloses wherein each mask element has a thickness (fig. 9, thickness of #150 above #151) at least equal to a height of the vertical gap (fig. 9, height of gap between #151 and 155).

6. Regarding claim 14, Possin et al. further teaches wherein at least one mask element is fabricated of at least black polyamide (col. 5, lines 32-40).

7. Regarding claim 27, Fujii et al. further discloses wherein a portion of the mask element (fig. 9, #150) is disposed adjacent to the first and second scintillators (fig. 9, #151).

Allowable Subject Matter

8. Claims 1-7, 15, 18-26, 28, and 29 are allowed. Claim 30 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form

Art Unit: 2882

including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter.

9. Regarding claim 1, prior art fails to disclose or fairly suggest a CT detector, including an optical mask arranged and extended in major part along a third plane parallel to first and second planes, and disposed between a scintillator array and a photodiode array without encroachment upon any of the first plane or the second plane, the optical mask configured to reduce optical transference between a scintillator and a neighboring photodiode, the optical mask located closer to the scintillator array than the photodiode array, in combination with all the limitations in the claim. Claims 2-7 and 26 contain allowable subject matter by virtue of their dependency.

10. Regarding claim 15, prior art fails to disclose or fairly suggest a CT system, including an array of optical cross-talk inhibitors formed of optically absorbent material and interstitially layered between, without encroachment upon, a layer of an array of scintillators and a layer of an array of photodiodes, the array of optical cross-talk inhibitors located closer to the layer of the array of scintillators than the layer of the array of photodiodes, the array of optical cross-talk inhibitors located in a layer that comprises a substantially same major orientation as the layer of the array of scintillators and the layer of the array of photodiodes, in combination with all the limitations in the claim. Claims 18, 19, and 28 contain allowable subject matter by virtue of their dependency.

Art Unit: 2882

11. Regarding claim 20, prior art fails to disclose or fairly suggest a method of CT detector manufacture, including the step of arranging a cellular arrangement of scintillators, a cellular arrangement of photodiodes, and an optical cross-talk mask in a multi-planar stack wherein each of the cellular arrangements and the optical cross-talk mask are arranged orthogonal to a central axis of x-ray incidence on the cellular arrangement of scintillators such that the optical cross-talk mask is sandwiched between the cellular arrangement of scintillators and the cellular arrangement of photodiodes, such that the optical cross-talk mask is located closer to the cellular arrangement of scintillators than the cellular arrangement of photodiodes, and such that in the multi-planar stack a plane of the cellular arrangement of scintillators, a plane of the cellular arrangement of photodiodes, and a plane of the optical cross-talk mask comprise a substantially same major orientation, in combination with all the limitations in the claim. Claims 21-25 and 29 contain allowable subject matter by virtue of their dependency.

12. Regarding claim 30, prior art fails to disclose or fairly suggest a CT detector, including wherein at least one mask element of optically absorbing material is arranged and extended in major part along a third plane parallel to first and second planes to reduce optical transference between a first scintillator and a second photodiode and a second scintillator and a first photodiode, and disposed between the first and the second scintillators and the first and the second photodiodes without encroachment upon any of the first plane or the second plane, in combination with all the limitations in the claim.

Response to Arguments

13. Applicant's arguments with respect to claims 8, 9, 12-14, and 27 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed October 3, 2006, have been fully considered but they are not persuasive.

Regarding at least claim 8, applicant mainly argues that Fujii et al. fails to teach or suggest at least one mask element arranged and extended in major part along a plane disposed between the first and the second scintillators and the first and the second photodiodes to reduce transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes. The examiner disagrees. See the claim rejections and Figure 9 of Fujii et al. as modified above. In conclusion, applicant's arguments are not persuasive, and Fujii et al. still applies as prior art in the claim rejections above.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2882

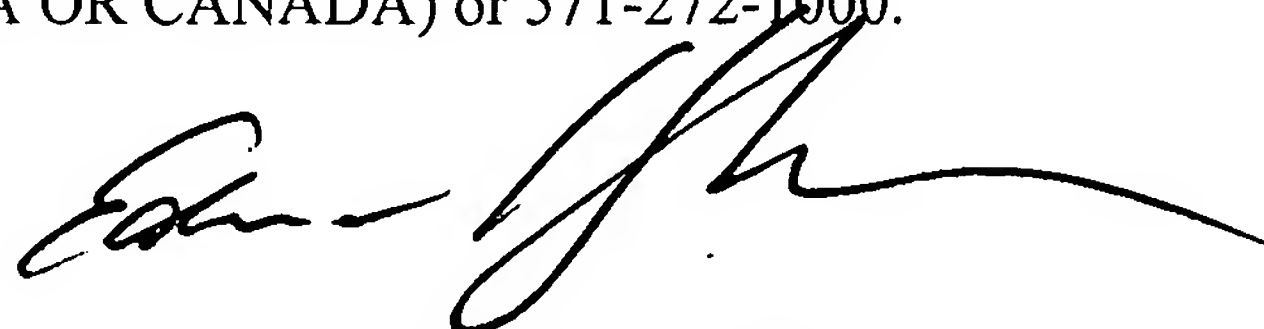
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


gk



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER